1. Contact Information

a. Applying Municipality

City: | Knoxville
State/ Province: | Tennessee
Country: | USA

b. Contact Person

First Name: | Susanna
Last Name: | Sutherland

E-mail Address: | ssutherland@cityofknoxville.org
Phone Number: | (865) 215 - 4430

Street Address 1: | City County Building

Street Address 2: | 400 Main Street, Rm. 528 A

City: | Knoxville
State/Province: | Tennessee

Country: | USA
Postal Code: | 37902

2. What challenge facing the city does the proposal address?

a. Please provide a brief summary of the context surrounding the proposed topic area(s), including past efforts and current initiatives. If desired, include links to relevant articles, papers or blogs covering the topic(s), to provide our review team with additional background material

In spite of partnering with local utilities to lead aggressive energy reduction campaigns, the City of Knoxville lacks a system that connects our network of emergency utility bill services to the solution: weatherization and energy education. Knoxville, Tennessee has an aging housing infrastructure that consumes energy in excess, often leaving residents with utility bills too large for them to pay. This results in a drawdown of resources from helping agencies, but not in direct follow up of weatherization and education services. The cycle wastes millions annually. In 2011, five organizations paid 3.3 million for emergency utility bills to the Knoxville Utilities Board (KUB) on behalf of private struggling residential accounts. This amount assisted 9,670 households, averaging $339 in utility benefits per household. These programs are designed to alleviate immediate financial pressure experienced by low-income families, rehabilitated citizens, and people who have recently been or are in immediate danger of becoming homeless; they do not include preventative measures. Ignoring prevention of excess energy consumption is economically and socially destructive, and excessively damaging to local health, given that 60% of power consumed in the Tennessee Valley Authority's territory is coal generated (http://www.tva.com/environment/reports/irp). Buildings are a logical target because they account for 36% of our energy consumption and 65% of electricity consumption (http://www.epa.gov/oaintrnt/projects/). Knoxville is in need of concerted energy reduction measures because it is first in the Asthma and Allergy Foundation of America's 2012 Top Five Allergy Capitals (http://www.aafa.org).

The City of Knoxville would like to utilize the skills and expertise of a talented IBM team to brainstorm a way to track and measure emergency energy services and to recommend the best way to systematically address Knoxville's older housing stock accordingly. Knoxville is represented on national working groups dedicated to creating strategies for residential energy efficiency programs, so we know that this is a relevant area of study that as of yet has no consistent answer across the United States.

b. Which key stakeholders are invested in the proposed topic area, both inside and outside city government?

Solving this problem is supported by all sectors. We see this as a systemic issue crossing existing operational territories. A strategic management approach is supported by the Mayor, Council, utilities, not-for-profits, and the business community. The Tennessee Valley Authority and the Knoxville Utility Board will be the primary utilities represented. They offer assistance programs in addition to what our not-for-profits offer. Charitable organizations providing assistance include the Salvation Army, The Refuge, and churches that provide utility assistance to community members. Not-for-profits funded through state and federal sources for weatherization activities include the City of Knoxville Community Development Department, the Knox Housing Partnership, and the Knoxville – Knox County Community Action Committee, who completed 1,547 weatherization jobs in 2011 with 6.1 million in federal weatherization funds. Originally awarded 4.5 million, they exceeded goals and the State of Tennessee awarded an additional 1.2 million. IBM's primary partner, the City of Knoxville, has a history of allocation to weatherization and incentive programs; the city is averaging a leverage of $2.76 in private investment for every federal dollar spent. The team will also interact with the for-profit weatherization and energy services industry as contracting entities for much of the work.

The Refuge - http://vmcinc.org/programs/the-refuge/
The Knoxville Knox County Community Action Committee - http://www.knoxcac.org/program.html#ehs
The Salvation Army - http://www.uss.salvationarmy.org/uss/www_uss_knoxville.nsf
The City's Community Development Department - http://www.cityofknoxville.org/development/housing.asp
The Knoxville Utility Board's (KUB) Project Help -
http://www.kub.org/wps/portal/Customers/Home/Community/CommunityPrograms/ProjectHelp
The Knoxville Housing Partnership - http://www.khp.org/Home.aspx

c. Which city staff member would be the project's sponsor?

Susanna Sutherland, founder of the City's Office of Sustainability will sponsor this project. She will also spearhead the written roadmap when the team's work is complete.

d. Please indicate which topic areas are connected to the proposed focus (check all that apply):

☐ Economic Development   ☑ Health & Social Services

☑ Education & Workforce Skills   ☐ Transportation

☑ Water, Energy & Environment   ☐ Other

☐ Public Safety

3. What does success look like?

a. What systemic factors prevent the city and community from addressing this issue without a Smarter Cities Challenge grant (for example: insufficient budget, organizational culture, regulation, legislation, etc.)

Though the Knoxville Utility Board (KUB) is considered a municipal utility, the City and KUB do not interact operationally. This creates a silo that is almost impenetrable and would greatly benefit from an outside perspective. The City's Office of Sustainability and KUB headquarters interact amiably. However, relationships are tenuous among some of the other interacting departments - such as City engineering and KUB electric, where cost and usage data are kept separately by each governing agency.

These types of historical cultural mindsets and antiquated systems keep KUB and the City from becoming a cohesive positive influence in our community. Connecting our emergency bill services to weatherization services in order to reduce energy consumption is one area where both agencies share the same goals. Working momentum built around this has strong potential to spread between the two organizations for long term positive and effective interaction.

Utility and city system coordination is historically difficult. It's a pervasive problem dealt with daily in the majority of cities in America. By working with each entity and the connected stakeholders, IBM will serve as a significant catalyst to designing a mechanism whereby cities and utilities can speak the same language and work effectively toward a common goal.

Without the valuable input of IBM experts, the City will continue to work on a solution one piece at a time. However, with the assistance of an unbiased third party with strong ideas for crafting a new systematic approach to an old problem, progress will be much more efficient and effective. The technical experience and strategic insight of the IBM team will bring the best out in the city, the utility, the stakeholders, and the community members.

b. What would be a successful outcome of a Smarter Cities Challenge engagement for the city?

With a working system to log and track these payments, success will be a road map with the following primary outcomes: first, a comprehensive identification system of properties that solicit emergency utility bill payment would be developed. Second, a mechanism would be designed whereby a weatherization representative would contact the occupants to discuss thermostat habits and assess the structure. Third, a plan would be developed to allow the structure's owner to be connected with low interest weatherization loans or grants, depending on the IBM team's business strategy. Ultimately, the structure would be retrofitted and become ineligible for future emergency funds in a systematic, whole house approach to the problem.

Upon completion of this road map, Knoxville and IBM will have crafted a strategic solution for connecting energy consumption data to valuable weatherization resources that substantially benefit the community. There are many agency systems that need coordinating, and the city does not have the staff time or expertise to go about planning this in a comprehensive, systematic manner. Emergency bill data that we do have doesn't capture any of the faith based organizations who pay for practitioners, and is in many ways just a starter estimate of the amount this community spends to simply keep the heat on for those in fiscal distress.

As Knoxville works smarter, we are becoming more sophisticated in our instrumentation and utility interconnections. We are already learning the power of leveraged data to target trouble spots across our myriad of systems and services. We have learned that better and more data can provide our leaders with tools to optimize our use of limited resources, make better decisions, and best target our interventions. Our goals align with the goals laid out in the IBM Smart Cities Challenge.

c. After the engagement, what efforts will be made to act upon the recommendations? What efforts would be taken to share best practices with other cities?

As this challenge represents a pressing, substantive topic that tangibly affects the lives of our citizens, it will be implemented and expanded upon exit of the IBM experts. The City of Knoxville does not have to set aside capital or operating budget funds to set the system in motion, because the emergency utility funds and weatherization allocations are made annually by supporting agencies. Connecting them is the key we are after, which involves the political muscle we already have more than finding new money.

The city and the utility have agreed to work together with the IBM team and our nonprofit and business partners to develop an implementable solution that systematically addresses our community's inefficient housing stock. We will bring to the table on-the-ground input on how to keep implementation costs down so when the IBM team leaves, we have a working product to begin using. Knoxville is a common sense community bent on improving efficiency in all our operations. We have a hands-on Mayor who has made energy consumption reduction an administration priority, and a flexible staff skilled in transforming new ideas and ways of functioning into functioning reality in our community.

The City of Knoxville has established itself a national presence in energy efficiency and renewable energy by demonstrating strong, dynamic leadership with a history of innovation and accomplishment. We are often called upon to speak on lessons learned from specific initiatives. In August of 2012 alone, our staff has addressed hundreds from cities across America and at least three other countries through three webinars hosted by the National Renewable Energy Lab and the Department of Energy, detailing a first of its kind third-party solar finance deal, a successful $19,000,000 energy performance contract retrofitting 99 city facilities, and a strategy that connects energy and economic development.

As a community we are watched by leading energy organizations, and our successes and lessons learned are precedents to learn from. The City of Knoxville is a new addition to the Department of Energy's Better Buildings Challenge, in which we pledged a 20% energy reduction in over 2 million square feet by 2020. Part of that commitment is to encourage energy efficiency in our community, and to share what we have learned with the federal government and other municipalities. It is our goal to work together to avoid duplicitous efforts within communities. When we accomplish something, we share our experience with others; just as we borrow from the successes of others to craft our own initiatives. The IBM experience will be discussed with our peers so everyone can benefit.

4. Executive Sponsorship

Please attach a letter, signed by the Mayor or equivalent top executive of the municipality, county or jurisdiction, confirming the city's submission to the Smarter Cities Challenge.

5. Smarter Cities & Data

While completing this section is encouraged, applicants are not required to fill out all of the questions in this section of the form to receive a Smarter Cities Challenge grant.

a. What role can open data and citizen engagement play in addressing the proposed topic area?

IBM is needed to make the third-party case that utility use data shared with the city and our not-for-profit partners can help address strategic reduction and intervention. Citizen engagement is vital to this effort, as inefficient user habits can be just as detrimental to utility bills as poor insulation. Without the education component in the proposed sketch of success, a large portion of the problem would not be addressed.

The City of Knoxville's Office of Sustainability strives to be as transparent as possible in order to make the case to the community and to funders that there is a need for actions and support. To that end we have committed to sharing our own consumption and efforts to reduce it with the nation, in an effort to lead by example. Open data and citizen engagement will play a huge role in developing a replicable roadmap for others.

The City of Knoxville's Energy Baseline Inventory and Energy and Sustainability Work Plan (linked below) were created directly from a mayoral task force that commissioned volunteer work groups to address six topics of improvement. That stakeholder group of over 100 citizen volunteers has a vested interest in seeing the city succeed in its short and long term goals.

The success of the IBM Challenge will be shared with them and our network of communities - as the outcomes of all our projects are: in meetings, press releases, and on our blog: http://knoxsustainability.blogspot.com/

Energy Inventory: http://www.cityofknoxville.org/sustainability/Knoxville_Energy_Inventory.pdf
Energy & Sustainability Work Plan: http://www.cityofknoxville.org/sustainability/Work%20Plan_03-30-12.pdf

b. Please describe your city's policy for the publication and release of city data, and, if available, provide links to the following:

Published Open Data policy, Data Glossary & Terms and Conditions:

The City of Knoxville commits to collaboration and sharing of relevant records with the IBM experts, including access to key stakeholders as needed. The City of Knoxville actively strives to promote open data, and promptly complies with the State of Tennessee's open records act, as linked below:

http://www.comptroller.tn.gov/openrecords/pdf/Open%20Records%20draft501.pdf

Contact information for Chief Technology Officer or equivalent

Mr. Eddie Mannis, Chief Operations Officer and Deputy to the Mayor, emannis@cityofknoxville.org, 865-215-2877

☑ Yes, I would like to be contacted by the City Forward team about opportunities for collaboration.